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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,142	12/15/2003	Yong Seok Seo	123056-05004428	9271

22429 7590 07/12/2007	**EXAMINER**
LOWE HAUPTMAN BERNER, LLP	
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ALEXANDRIA, VA 22314	

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _15 December 2003_.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-7_ is/are pending in the application.

    4a) Of the above claim(s) _8 and 9_ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1,2 and 7_ is/are rejected.

7) ☒ Claim(s) _3-6_ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _December 15, 2003_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _12/15/2003_.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Restriction Requirement

1.   Applicant has elected Group 1, which consists of claims 1-7 therefore

Group 2 consisting of claims 8-9 are withdrawn from consideration. On page 1 of

the response, Applicant has argued that both Groups I and II are close related

and are a single invention, an argument with which the Examiner disagrees.

Groups I and II are indeed related, however, they are separate invention. Group I

is directed to embedding a watermark and Group II is directed to embedding a

watermark using a key, which are clearly two distinct inventions and would

require the Examiner to do a different search for each invention. Therefore, this

restriction requirement is final.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Joo et al (NPL document tilted: A New Robust Watermark Embedding into

Wavelet DC components) in view of Yoshiura et al (US Patent No.: 6,959,101).

As to independent claim 1, Joo discloses a method for embedding a digital

watermark on a wavelet lowest sub-band (watermark embedding into wavelet dc

components, see title), the method comprising: setting a DC component region of

a multi-stage wavelet-transformed original copy image to a watermark

embedment region (see page 401, [p][003], lines 1-3, where an original image is

decomposed to create the LL sub-band for watermark embedding), and high-

frequency filtering an original picture $LL_{n\backslash}$ of the embedment region to generate a

mirror picture $LL_{n\backslash}$ from which a high frequency component is eliminated (note

that the LL sub-band is further filtered to create LL', see page 402, [p][001], lines

1-9); generating index information for designating a pixel position on which the

watermark is embedded within the watermark embedment region, and a

watermark sequence to be embedded (note that index information is generation

for the LL sub-band, see embedding algorithm on page 402); calculating an

embedment strength λ for each position of the watermark embedment region

considering a variance degree of an original picture $LL_{n\backslash}$ coefficient value; in

case the watermark sequence is sequentially embedded on an embedded

position designated by the index information, mutually comparing the original

picture $LL_{n\backslash}$ coefficient value for each embedded position with a mirror picture

$LL_{n\backslash}$ coefficient value (see page 402, [p][002], lines 5-10, where LL and LL' are

compared and the watermark is embedded in the location where is a difference

between LL and LL'), and then altering the original picture $LL_{n\backslash}$ coefficient value

depending on the watermark value with reference to the embedment strength λ

of a corresponding position to embed the watermark (see page 402, [p][002],

lines 1-5, where a factor K controls the intensity of watermark embedding); and in

case the original picture $LL_{n\backslash}$ coefficient value altered by watermark embedment

is differentiated above a predetermined value with reference to the corresponding

embedment strength λ in comparison with the coefficient value before altered,

skipping the watermark embedment for the position (note that absolute value

between LL and LL' is used as the criteria for embedding or skipping an area,

see page 402, [p][002], lines 4-7).

However Joo does not expressly disclose calculating an embedment

strength λ for each position of the watermark embedment region considering a

variance degree of an original picture $LL_{n\backslash}$ coefficient value. Yoshiura disclose a

digital watermark technique (column 1, lines 12-14) that calculates embedment

strength λ for each position of the watermark embedment region considering a

variance degree of an original picture $LL_{n\backslash}$ coefficient value (see column 2, lines

25-35, where an embedment strength is dependent on the variance). At the time

of the invention, it would have been obvious to a person of ordinary skill in the art

to combined the teaching of Joo and Yoshiura so that the watermark will be

embedded only in area of the LL sub-band of the image that is visually

impermissible by the human vision system thereby making the watermark robust.

As to claim 7, Joo teaches the method wherein in the watermark

embedding step, the watermark sequence is repetitively embedded in each

embedded position at predetermined times being set depending on robustness

and screen degradation degree (note that the process is repeated and is

dependent on the signal-to-noise-ratio, see page 402, [p][002], lines 10-15).

3.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Joo et al (NPL document tilted: A New Robust Watermark Embedding into

Wavelet DC components) in view of Yoshiura et al (US Patent No.: 6,959,101)

further in view of Mehul (NPL document tilted: Discrete Wavelet Transform

Based on Multiple Watermarking Scheme).

       As to claim 2, neither Joo or Yoshiura disclose the method wherein in the

high frequency component eliminating step, the high-frequency component is

eliminated from a picture of the watermark embedment region through Wiener

filtering. Mehul discloses digital watermarking method (see title) wherein in the

high frequency component-eliminating step, the high-frequency component is

eliminated from a picture of the watermark embedment region through Wiener

filtering (see page 937, [p][001], lines 1-4). At the time of the invention, it would

have been obvious to a person of ordinary skill in the art to combined the

teaching of Joo as modified by Yoshiura with Mehul to remove the high

frequency components from the LL subband

Allowable Subject Matter

4.   Claims 3- 6 objected to as being dependent upon a rejected base claim,

but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Conclusion

The prior art made part of the record and not relied upon is considered

pertinent to applicant's disclosure.

Inoue et al (US Patent No.: 6,693,965) is cited to teach a digital

information embedding apparatus.

Seo et al (US Patent No.: 7,092,545) is cited to teach an apparatus and

method for embedding and extracting a digital watermark based on a wavelet.

Donescu et al (US Patent No.: 6,718,045) is cited to teach a method and

device for inserting a watermarking signal in an image.

Manjunath et al (US Patent No.: 6,332,030) is cited to teach a method and

embedding and extracting digital data in images and video.

Hannigan et al (US Patent No.: 6,633,654) is cited to teach a perceptual

modeling of media signals based on local contrast and directional edges.

Joo et al (Pub No.: US 2003/0095682) is cited to teach an apparatus and

method for embedding and extracting digital watermarks based on wavelets.

Joo et al (Pub No.: US 2004/0156528) is cited to teach n apparatus and

method for preventing illegitimate distribution of digital contents on Internet

(NPL document tilted: Embedding Image Watermarks in DC Components) is cited to teach a method for embedding strategy for invisible image watermarking in DCT domain.

Huang et al (NPL document tilted: An adaptive video watermarking algorithm) is cited to teach an adaptive video watermarking algorithm base don wavelet domain.

Hsieh et al (NPL document tilted: Hiding Digital Watermarks Using Multiresolution Wavelet Transform) is cited to teach a method for embedding digital watermarking base on a wavelet transform.

Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrae S. Allison whose telephone number is (571) 270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.
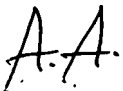
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrae Allison

June 19, 2007

A.A.

JOSEPH MANCUSO
SUPERVISORY PATENT EXAM...